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Gates Foundation, DOD Helping Fund Pandemic 'Early Warning' Surveillance System in Africa

Sentinel is a proprietary system powered by CRISPR gene-editing technology that uses "participatory" digital health tools developed with funding from the U.S. Department of Defense's Defense Advanced Research Projects Agency, or DARPA.

By Brenda Baletti, Ph.D.

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Scientists are developing a proprietary "early warning system" — powered by CRISPR gene-editing technology — to "detect and characterize deadly pathogens" in Africa "before they spread across the globe," STAT News reported.

The surveillance system — dubbed Sentinel — was launched with funding from the Bill & Melinda Gates Foundation and others. It uses "participatory" digital health tools developed with funding from the U.S. Department of Defense's Defense Advanced Research Projects Agency, or DARPA.

Sentinel's lead developers are Pardis Sabeti, M.D., D.Phil., and Christian Happi, Ph.D., who are patenting the technology to commercialize it in the U.S.

Sabeti is a World Economic Forum Young Global Leader, Harvard professor and director of the Broad Institute's Sabeti Lab. Happi is a professor of molecular biology and genomics at Redeemer's University in Nigeria, an adjunct professor of immunology and infectious diseases at Harvard and director of the African Centre of Excellence for Genomics of Infectious Diseases (ACEGID), a genomic research institute focused on Africa, which he co-founded with Sabeti in Nigeria.

Sentinel aims to use rapid testing at "points-of-care" — anywhere tests can be administered, including non-clinical settings — across rural Africa to identify and genetically sequence pathogens. Then researchers will use cloud-based technology to share that information across the public health information sphere.

Global public health researchers can then track and predict "threats" and use that information to rapidly develop new diagnostics and vaccines — what the researchers call a "virtuous cycle," according to a 2021 paper published in Viruses by the developers.

The Sentinel project was officially launched in 2020 with funding from TED's Audacious Project, backed by Jeff Bezos' ex-wife MacKenzie Scott, Open Philanthropy, the Skoll Foundation and the Gates Foundation.

But DARPA, the National Institutes of Health (NIH), the Wellcome Trust and others funded the development of the CRISPR technology the project will use to detect pathogenic threats.

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In an interview with The Defender, University of Illinois international law professor Francis Boyle, J.D., Ph.D., a bioweapons expert who drafted the Biological Weapons Anti-Terrorism Act of 1989, said:

> "They fully intend to use synthetic biology to research, develop and test biological warfare weapons. That's DARPA's motivation for funding this.
>
> "It fits in with Predict and its successor, also funded by USAID [U.S. Agency for International Development], which is a front organization for the CIA, to go out into the world and find every exotic disease, fungus, toxin, virus they possibly can and bring them back here and then weaponize them in their BSL3 [biosafety level 3] and BSL4 labs."

According to Boyle, the Broad Institute is one of the country's leading DARPA-funded synthetic biology research centers.

Happi and Sabeti officially launched Sentinel in West Africa one month before the World Health Organization declared COVID-19 a pandemic. By early February 2020, they were using it to deploy COVID-19 rapid testing and genomic sequencing in hospitals across Sierra Leone, Senegal and Nigeria — before anywhere in the U.S. was doing so, STAT reported.

In March 2020, Happi's lab confirmed the first COVID-19 case in Nigeria and became the first African lab to sequence a SARS-CoV-2 genome.

"Experts" told STAT that Africa is a "hot spot for emerging infectious diseases" because the existing system of disease surveillance is too centralized and top-down.

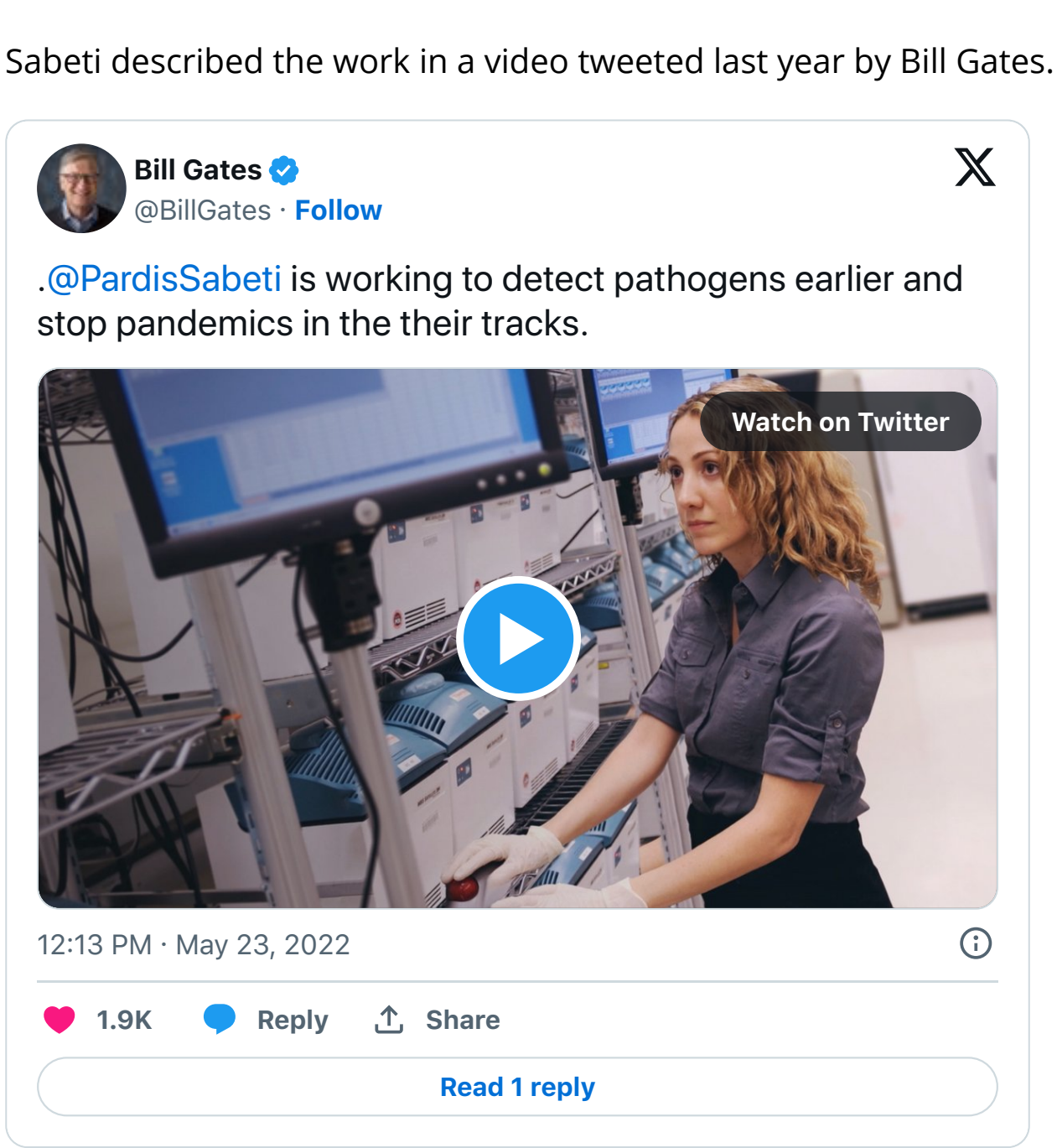
Happi and Sabeti aim to change that, they said, by making disease surveillance "bottom-up" — getting "everyday Africans" and community frontline workers working as "sentinels" to surveil their friends and communities for diseases.

They said their project can change how disease surveillance works globally. "Everybody in the world should be a sentinel, a sentinel not only for his own immediate community, for his own country — but a sentinel for the globe," said Happi.

'Very wealthy people have figured out how they can get extremely rich from this'

The developers said the Sentinel program is needed because viruses can mutate at any time to become pandemic threats, and this system is designed to find them early.

Sabeti described the work in a video tweeted last year by Bill Gates.



Bill Gates @BillGates · Follow

.@PardisSabeti is working to detect pathogens earlier and stop pandemics in the their tracks.

12:13 PM · May 23, 2022

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Sentinel is designed to identify pathogens at the most localized level possible and then disperse diagnostic and genomic information as quickly as possible to public health officials and researchers designing treatments, vaccines and new tests.

Clinicians or others are meant to administer "point-of-care" tests that use CRISPR gene-editing technology, which turns gene editors into pathogen detectors through different techniques, some of which are still in development.

Sentinel's first line of intervention is the SHINE (SHERLOCK and HUDSON Integration to Navigate Epidemics) diagnostic tool, easily administered at almost any location. It tests blood or urine samples and reveals the results on a piece of paper without any high-tech equipment.

Happi told STAT that administering the test is like "doing a PCR on a sheet of paper" and that it is so simple that his grandmother could do it in her village.

But SHINE — an improvement on Sabeti's earlier Specific High-sensitivity Enzymatic Reporter UnLOCKing, or SHERLOCK test — can test for only one pathogen at a time.

If that test fails to detect anything, Sentinel researchers launch their next-level test, CARMEN (Combinatorial Arrayed Reactions for Multiplexed Evaluation of Nucleic acids), which can screen for up to 16 pathogens at a time and must be implemented at a nearby rural hospital.

Research on the CARMEN technique was funded by DARPA, NIH, and Wellcome and published in Nature in 2020.

If CARMEN fails, the sample is "escalated" to a regional genomics hub, where every virus in the sample, "known or unknown," is sequenced.

Researchers can use those sequences to quickly make new diagnostic tests for the newly identified pathogens, STAT reported.

The data collected through Sentinel is shared across healthcare clinics and public health officials' proprietary mobile apps and cloud-based reporting systems developed by Dimagi — a Gates Foundation-funded for-profit tech company that targets low-income communities — and Fathom — a for-profit software developer funded by Sabeti labs.

Sabeti filed patents for the technology and co-founded a biotech startup, Sherlock Biosciences, to commercialize these tests for use in the U.S.

Sherlock also has startup funding from the Gates Foundation, Open Philanthropy and a number of other biotech venture capitalist companies.

With funding from DARPA, Battelle National Biodefense Institute, the U.S. Department of Homeland Security, the NIH and others, the Broad Institute and Princeton University researchers also used SHINE to create a rapid test for COVID-19.

Sabeti sits on the board and serves as a shareholder of the Danaher corporation, which develops research tools determining the causes of disease and identifies new therapies and tests of drugs and vaccines.

Happi also collaborates with the Rockefeller Foundation's Pandemic Prevention Institute and bioengineering firm Ginkgo Bioworks to deploy Ginko's automation technologies to his lab to sequence genomes.

But Sabeti told STAT that providing people with access to testing is her true priority. And she is on the board of a nonprofit that will work to send the tests her new company makes to low- and middle-income countries "at cost."

Sentinel's real contribution, Sabeti said, is its focus on "empowerment."

Sabeti and Happi are currently field testing SHINE and CARMEN. In the process, they are training scientists in genomic surveillance and collecting hundreds of thousands of genomes.

STAT didn't specify whether those are virus genomes or people's genomes, but Boyle said the testing would make it possible to also collect the genomes of African people, which he said is a form of biopiracy.

Other notable collaborators on the 2021 Viruses paper that helped publicly launch Sentinel include Scripps Research Institute virologist Kristian Andersen, Ph.D., co-author of the now infamous Nature "Proximal Origins" paper used to promote the theory that COVID-19 evolved in nature. Andersen's private communications later revealed he suspected a segment of the SARS-CoV-2 genome may have been engineered in a lab.

Happi and Andersen have collaborated on several projects and publications.

Examples of conflicts of interest among the Virus paper's co-authors also include Anthony Philippakis, M.D., Ph.D., a venture partner at Google Ventures; Jonathan Jackson, CEO of Dimagi; and Robert Garry, Ph.D., Matthew L. Boisen, Ph.D., and Luis M. Branco, Ph.D., who all work for Zalgen Labs, a "biotechnology company developing countermeasures to emerging viruses."

Garry also co-authored the "Proximal Origins" paper.

Zalgen has a contract with the Coalition for Epidemic Preparedness Innovations to develop vaccines for Lassa fever, the disease used in the development of the Sentinel system.

They all stand to profit from Sentinel's success.

Dr. David Bell, a public health physician and biotech consultant in global health, told The Defender the Sentinel program reflected a broader problem with global public health priorities.

"Public health has become a for-profit industry that's very, very lucrative," Bell said. "As a result, the field no longer works to provide people with better economies, sanitation, nutrition, access to basic medicines and research on major endemic infectious diseases, such as tuberculosis and malaria."

Instead, research funding is diverted to "pandemic preparedness," diseases that kill relatively few people.

Bell said:

> "We've got to a point where very wealthy people have figured out how they can get extremely rich from this and they have enough money to completely control the agenda. So now they essentially control the agenda of global health.
>
> "So you don't hear much about sanitation and nutrition any more because that's not where the people who are running the agenda can make their money."

What they're doing is not "intrinsically bad," Bell said. "The question is whether it is proportionate to the need or is it a diversion of resources that in doing so will cause a net harm? And that's a question that people won't talk about."

Sabeti, Happi and Broad Institute at forefront of viral hemorrhagic research in Africa for years

Sabeti, Happi and the Broad Institute have also been at the forefront of viral hemorrhagic fever research in Africa, including Lassa virus and Ebola.

Andersen, Garry, Sabeti and Happi all serve on the board of the Viral Hemorrhagic Fever Consortium (VHFC), founded in 2010 with funding from the NIH, the National Institute of Allergy and Infectious Diseases (NIAID) and Tulane University.

Sabeti and Happi began working together in 2008, studying the virus that causes a viral hemorrhagic fever known as Lassa fever, which infects hundreds of thousands — most of whom recover — and kills about 5,000 people globally per year, according to recent estimates. Lassa fever is considered a category A (most dangerous) bioterror threat.

The Viruses paper provides an account of Sabeti and Happi's work on Lassa. By mapping human genomic variation in West Africa, they found the Lassa virus existed for half a millennia there, but had gone undetected because people had developed genetic resistance to it.

And many people with Lassa were being misdiagnosed because they had nonspecific symptoms.

This work led them to an epiphany moment — "the realization that in many parts of the world, we are largely blind both to the prevalence of known infectious diseases and to the appearance of new threats," the paper said.

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By developing better diagnostic tools for local healthcare workers, the paper concluded, diseases can be detected and better treatments and vaccines and then even better diagnostic tools can be created, "instead of awaiting the next outbreak."

Lassa virus is a BSL4 pathogen, the paper notes — although in West Africa it is studied at a research facility without that safety level — and it makes a plug for BSL4 research in Africa.

"With increased globalization and an ever-expanding human population, the need for large-scale research initiatives on BSL-4 pathogens remains acute," it says.

"Further, as only one BSL-4 lab exists in the entire region of West Africa ... even today, transnational partnerships are critical to allow ongoing investigation of BSL-4 pathogen samples."

Their work on Lassa led the researchers to begin developing a broader surveillance model and then to establish ACEGID at Redeemer University with support from Tulane, the NIH and the World Bank.

ACEGID then, according to the article, played a key role during the 2014 Ebola outbreak in West Africa, which happened just as ACEGID was launched in March of that year.

Happi's team identified the first case of Ebola in Nigeria and sequenced the genome of the Ebola virus in 2014, it said.

The mainstream press reported that the 2014 Ebola outbreak — which claimed 11,000 lives in West Africa — came from a two-year-old boy in Guinea playing in a bat-infested tree stump.

But U.S. Right to Know reported that independent evidence and phylogenetic analysis cast doubt on that narrative.

Chernoh Bah, an independent journalist and historian from Sierra Leone, reported errors in the established narrative identified through his interviews.

Research by investigative journalist Sam Husseini and virologist Jonathan Latham, Ph.D., built on Bah's research and pointed to a leak at the U.S. government-supported research laboratory in Kenema, Sierra Leone, where the VHFC was doing research on Ebola and Lassa.

Boyle also made this same argument in 2014.

An article co-authored by VHFC's Sabeti, Happi, Andersen and dozens of others published in Science argued that the Ebola outbreak had a zoonotic origin in Central Africa.

Happi's lab also sequenced the Lassa virus in a 2018 outbreak.

According to an article in Nature, Happi's sequencing also provided evidence that the Lassa outbreak had a zoonotic origin, rather than being from a mutation that made the disease more transmissible.

The Viruses paper said the success of ACEGID in addressing the Ebola crisis, along with its work on Lassa, laid the groundwork for Sentinel, launched just a few months before the COVID-19 pandemic.

Given that history, Boyle said:

> "I wouldn't trust anything Sabeti's doing. And I'd be very skeptical of any claims that are being made [about Sentinel] given the involvement of DARPA, the involvement of Broad and Broad's previous involvement at that Kenema lab with the outbreak of the Ebola pandemic."

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Brenda Baletti Ph.D. is a reporter for The Defender. She wrote and taught about capitalism and politics for 10 years in the writing program at Duke University. She holds a Ph.D. in human geography from the University of North Carolina at Chapel Hill and a master's from the University of Texas at Austin.

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Freedom Fox
8 days ago
Pardis Sabeti. A name that came into my knowing recently when I was researching bioweapon development that can target an individual or race, after RFK Jr's recent comment acknowledging they exist was scandalized. Pardis Sabeti appeared on a TIME100 panel in 2019 with eugenicist George Church who acknowledged their existence.
https://time.com/5574168/do...

And her involvement in strict authoritarian pandemic responses, mandates, lockdowns, contact tracing, surveillance systems, apps (Like 'Lookout' on university campuses), genetic evolutionary designs, eugenics, etc is found at local, state, federal and international levels. Any internet search of her name will return reams of stories lauding her work and character, headlines like her "saving the world...again" and assertions that "not all superheros wear capes" like her. She has an ahmazing publicist!

But perhaps the most troubling thing found in researching her is who her father is: Parviz Sabeti. The Shah of Iran's former trusted henchman who chaired SAVAZ, the notoriously evil national security police that tortured Iranians, physically and psychologically, brutally suppressed any and all dissidents, real or suspected, feared across Iran. Imposed surveillance systems straight out of the East German Stasi - but worse. One of the big

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brbg
8 days ago
You can bet that anything which involves Bill Gates, the Rockefellers et al is not for the benefit of mankind. Quite the opposite. Gates et al are antichrists.
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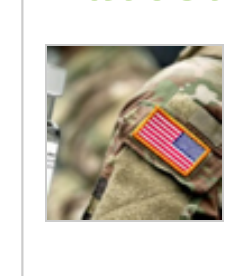

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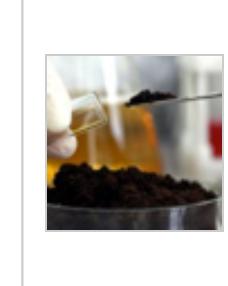

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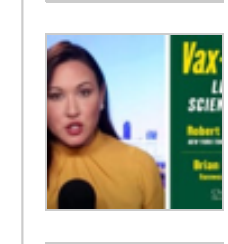

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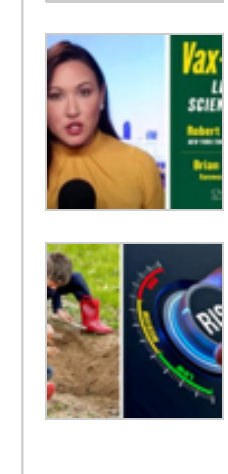

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